ABSTRACT

When seasonal pandemic occurs, hospitals will be challenged on how to place the sudden surge of patients safely. Due to the high cost, most state hospitals have minimal AIIR while some small district hospitals may not have the facilities at all. AIIR is the most effective solution for small scale airborne infection cases. However, it is highly insufficient at the peak of pandemic and is highly underused when pandemic is over. The availability of open wards makes them the next best options. The main issue when using open wards is that it may worsen infection because it is not originally designed for airborne infection isolation. The research attempts to investigate different perspectives whether open wards are feasible enough for airborne infectious isolation (AII) use in case a highly contagious seasonal pandemic crisis occur in the future. These include user's perception, spatial and ventilation perspectives. Data are collected through survey, interview, observation and measurement. Survey is conducted to investigate infection control, patient monitoring, user's comfort and safe visiting. Observation is conducted to investigate building form, orientation, vertical location, Emergency Department, core circulation, internal zoning and layout. Measurement is conducted to investigate building properties, wind speed and direction. These data are analyzed through statistical, spatial or ventilation analysis respectively. The findings of this research are correlated and thus show that open wards are not feasible in terms of safety and infection control because it is hard to achieve segregation and maximize natural ventilation to achieve air change or airflow more than 12 ACH or 160 l/s/patient. In addition, the result also shows that is also not feasible in terms of comfort and visiting but feasible for monitoring purposes only. Thus, building and ventilation retrofitting prior to the use for AII purpose is highly recommended.

APPROVAL PAGE

I certify that I have supervised and read this study and that in my opinion, it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a thesis for the degree of Master of Science in Built Environment

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DECLARATION

I hereby declare that this thesis is the result of my own investigations, except where otherwise stated. I also declare that it has not been previously or concurrently submitted as a whole for any other degrees at IIUM or other institutions.

NORITA JOHAR

Signature…….. Date……..

INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA

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**"THE FEASIBILITY OF OPEN WARDS FOR AIRBORNE INFECTIOUS ISOLATION USE DURING SEASONAL PANDEMIC CRISIS:
A CASE STUDY OF SUNGAI BULOH HOSPITAL"**

Affirmed by NORITA JOHAR

…… ……

Signature Date

I would like to dedicate this thesis to my beloved parents, husband, children and all family members for their love, endless support and encouragement.

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LIST OF ABBREVIATIONS

AII	Airborne Infectious Isolation
AIIR	Airborne Infection Isolation Room
ACH	Air Changes per Hour
API	Air Pollutant Index
CDC	Centre for Disease Control
CRC	Clinical Research Centre
DOE	Department of Environment
HEPA	High Efficiency Particulate Air
ID	Infectious Disease
JKR	Jabatan Kerja Raya
MOH	Ministry of Health
NIH	National Institute of Health
NMRR	National Medical Research Register
PPE	Personal Protective Equipments
SARS	Severe Acute Respiratory Syndrome
SBH	Sungai Buloh Hospital
SBHAS	Sultanah Bahiyah Hospital, Alor Star
SPSS	Statistical Package and Service Solutions
WHO	World Health Organization